Application No. 10/615,794

Amendment dated December 13, 2005

Reply to Office Action of September 13, 2005

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## AMENDMENTS TO THE CLAIMS

1. (Currently amended). A method of measuring a stability of a plating bath, said method comprising:

providing a plating bath having a known determining a voiding threshold concentration of a void-formation marker for said bath;

plating a metal using said bath;

obtaining a bath liquor, possibly containing a void-formation marker (VFM) from said bath;

determining a concentration of said void-formation marker; and maintaining said VFM concentration below said threshold concentration.

- 2. (Original). The method of measuring a stability of a plating bath, according to claim 1, wherein determining a concentration of said void-formation marker comprises: separating said void-formation marker from said plating bath liquor; and quantifying said void-formation marker.
- 3. (Original). The method of measuring a stability of a plating bath, according to claim 2, wherein said void-formation-marker is separated chromatographically.
- 4. (Original). The method of measuring a stability of a plating bath, according to claim 3, wherein said void-formation-marker is separated by liquid chromatography.
- 5. (Original). The method of measuring a stability of a plating bath, according to claim 3, wherein said void-formation-marker is separated by high performance liquid chromatography (HPLC).
- 6. (Original). The method of measuring a stability of a plating bath, according to claim 3, wherein said chromatography comprises ion-pairing, reversed-phase chromatography.

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- 7. (Original). The method of measuring a stability of a plating bath, according to claim 2, wherein said quantifying is performed by instrumental analytical methods selected from the group consisting of spectroscopy and electrochemical detection.
- 8. (Original). The method of measuring a stability of a plating bath, according to claim 7, wherein said spectroscopy comprises techniques selected from the group consisting of ultraviolet, visible, infrared, and mass spectroscopy.
- 9. (Original). The method of measuring a stability of a plating bath, according to claim 2, wherein said quantitation is provided by instrumentation that provides a quantitative output in proportion to a concentration of said void-formation marker.
- 10. (Original). A method of measuring a plating bath breakdown threshold value, T, said method comprising:

plating at least one metal on a substrate;

determining a plurality of time-points;

determining a VFM ratio for each of said time-points;

counting, for each of said time-points, a number of voids in the metal plated on said substrate:

determining said threshold value as the largest VFM ratio at which no voids are observed.

- 11. (Original). A method of measuring a plating bath breakdown threshold value, according to claim 10, wherein said VFM ratio is the said concentration of said void-formation marker divided by a concentration of an accelerator.
- 12. (Original). A method of maintaining a plating bath under non-voiding conditions, the method comprising the steps of:

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determining a bath threshold value, T; determining a  $C_{VFM}$ ; and performing a bleed and feed to maintain said  $C_{VFM}$  below the value of said threshold.

13. (Original). A method of maintaining a plating bath under non-voiding conditions, according to claim 12, wherein said bleed and feed comprises the steps of:

adding a volume of fresh bath liquor to bring the volume to a fractional volume above a nominal bath volume; and

removing said fractional volume;

14. (Original). A method of maintaining a plating bath under non-voiding conditions, according to claim 13, wherein said fractional volume is from about 1% to about 10%.